

# COUNTRY ANALYSIS BRIEFS

## Norway

Last Updated: August 2009

### Background

***Norway is the world's third largest exporter of natural gas and the sixth largest exporter of oil. While oil production has been falling in recent years, natural gas production continues to rise.***

Norway has a highly-developed oil and natural gas sector. Norway's oil production peaked in 2001 at 3.42 million barrels per day (bbl/d) and has been steadily declining since, reaching 2.47 million bbl/d in 2008. Natural gas production, on the other hand, has been steadily increasing since 1993, reaching 3.5 trillion cubic feet (Tcf) in 2008. All of Norway's oil and natural gas fields are located subsea on the Norwegian Continental Shelf. Most of the new discoveries being made are natural gas. The Norwegian government is committed to developing the frontier Barents Sea region as existing North Sea fields mature.

One issue that has hampered the development of oil and natural gas reserves in the northern Barents Sea area has been the lack of a defined maritime boundary between Norway and Russia. However, on June 5, 2009, Russian state-owned gas company Gazprom and Norwegian state-controlled oil company StatoilHydro signed a three-year Memorandum of Understanding to work together in exploring and developing their Arctic sea regions. According to a joint statement, the two companies will work together on development of the Shtokman field, some 345 miles from land in 1,148 feet of water. It holds estimated gas reserves of around 113 trillion cubic feet.

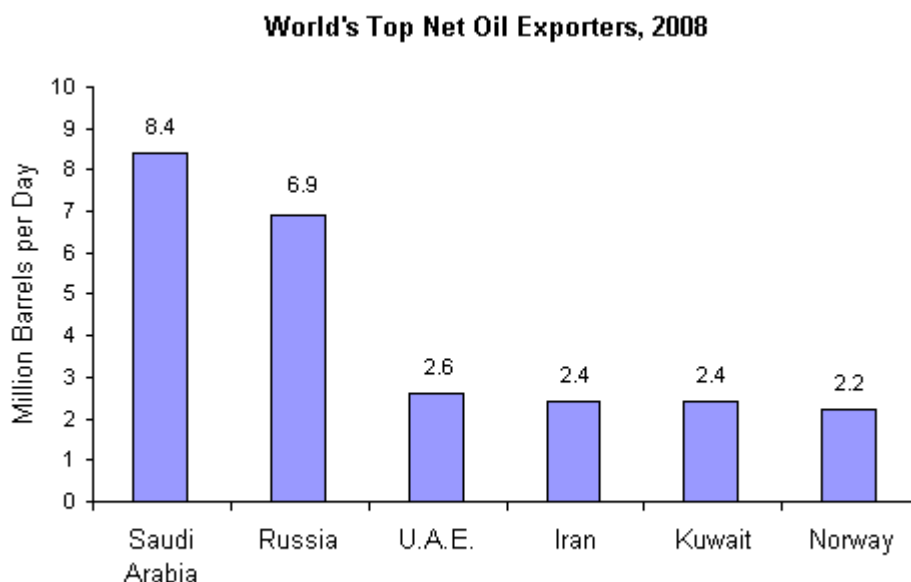


### Oil

***Norway is the largest oil producer in Europe***

According to the *Oil and Gas Journal* (OGJ), Norway had 6.7 billion barrels of proven oil reserves as of January 1, 2009, the largest oil reserves in Western Europe. Norway produced about 2.47 million barrels per day (bbl/d) in 2008 and consumed about 217,000 bbl/d. In 2008, Norway was

the sixth-largest net oil exporter in the world, exporting about 2.25 million bbl/d.



Source: EIA

### Sector Organization

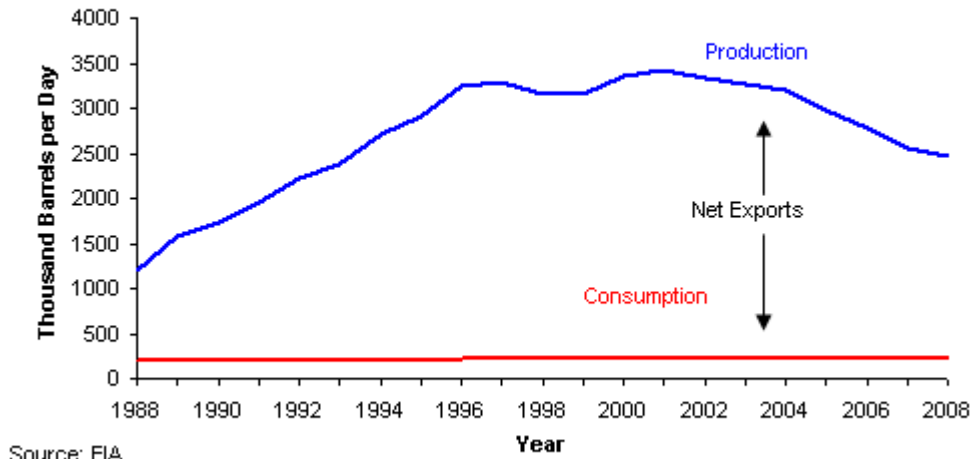
StatoilHydro, created by the merger of Statoil and Norsk Hydro in October 2007, is 67-percent-owned by the Norwegian government, and controls 80 percent of Norway's oil and gas production. State-owned Petoro administers these ownership interests and manages the production licenses and partnerships/companies. International oil majors have a sizable presence but they must act in partnership with StatoilHydro.

### Exploration and Production

Although there is hope that new developments in the Barents Sea and increasing the production of existing fields will offset some of the recent declines, most of the new finds are of natural gas rather than oil.

All of Norway's oil reserves are located offshore on the Norwegian Continental Shelf (NCS), which is divided into three sections: the North Sea, the Norwegian Sea and the Barents Sea. The bulk of Norway's oil production occurs in the North Sea, with smaller amounts in the Norwegian Sea and new exploration and production activity occurring in the Barents Sea. Exploration interest in the NCS remains strong on the part of major international oil companies. The most recent licensing round took place in April 2009 with 34 companies being awarded stakes in 21 new oil and gas licenses. In May 2009, the Norwegian Government approved the plan for development and operation of the Goliat oil field by licensees Eni Norway AS (65%) and StatoilHydro (35%). Goliat is the first oil field in the Barents Sea to be developed and is one of the largest industrial projects ever undertaken in the High North (Northern Norway). The field holds approximately 200 million barrels of oil reserves. It was discovered in 2000 and is about 40 miles offshore of the town of Hammerfest, which will be its land base. The field is expected to reach peak production of about 100,000 bbl/d starting in 2013.

### Norway Total Oil Production and Consumption, 1988-2008



#### Oil Exports

According to EIA, Norway exported an estimated 2.25 million bbl/d of crude oil and petroleum products in 2008, down from 2.34 million bbl/d in 2007. According to Statistics Norway, the amount of crude oil alone exported in 2008 was 1.83 million bbl/d. The largest single recipient of Norwegian oil was the United Kingdom, which imported 35 percent of Norway's total oil exports. Other significant destinations included the Netherlands (11%), France (10%), Germany (6%) and Belgium (4%). These 5 importers accounted for 66 percent of Norway's total oil exports.

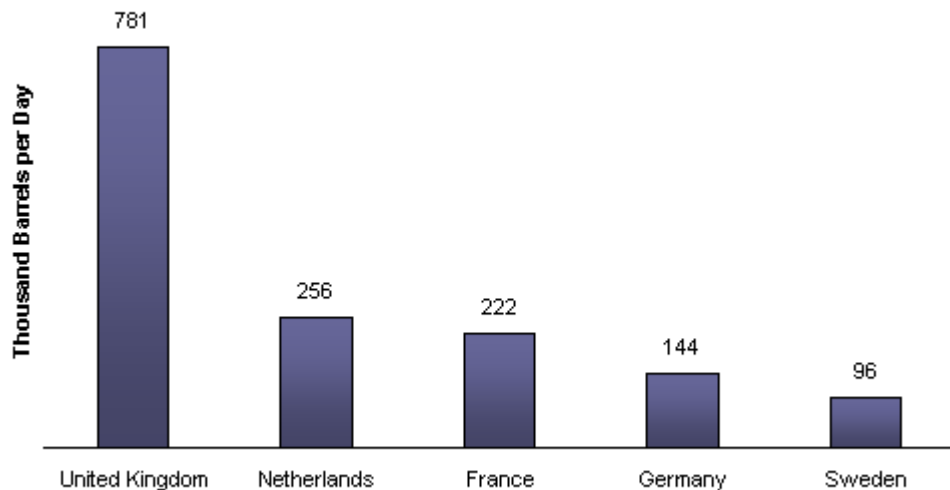
#### Pipelines

An extensive network of subsea oil pipelines links offshore platforms with onshore terminals. The 765,000-bbl/d Oseberg Transport System (OTS) connects the Oseberg field with the Stura receiving terminal. The 265,000-bbl/d Grane pipeline links the Grane field to Stura. The 265,000-bbl/d Troll I connects the Troll B platform to the receiving terminal at Mongstad, while the 300,000-bbl/d Troll II connects the Troll C platform to Mongstad. There are numerous, smaller pipelines that connect North Sea fields to either the OTS or Troll I/II systems, with the remaining offshore production brought ashore via shuttle tanker.

#### International Oil Pipeline

ConocoPhillips operates the 900,000-bbl/d Norpipe, which connects Norwegian oil fields in the Ekofisk system to the oil terminal and refinery at Teesside, England.

### Top 5 Importers of Norwegian Oil, 2008



Source: Statistics Norway, 2009

## Refining

According to the *OGJ*, Norway had 315,000 bbl/d of crude oil refining capacity in January 2009. The country has two major refining facilities: the 115,000-bbl/d Slagen plant, operated by ExxonMobil, and the 200,000-bbl/d Mongstad, operated by StatoilHydro. Norway is an important supplier of gasoline and diesel fuel to the European Union, as the production of these fuels at the Mongstad plant complies with stringent EU environmental rules. StatoilHydro dominates the retail products market in Norway and the company has also expanded aggressively into other European markets.

## Natural Gas

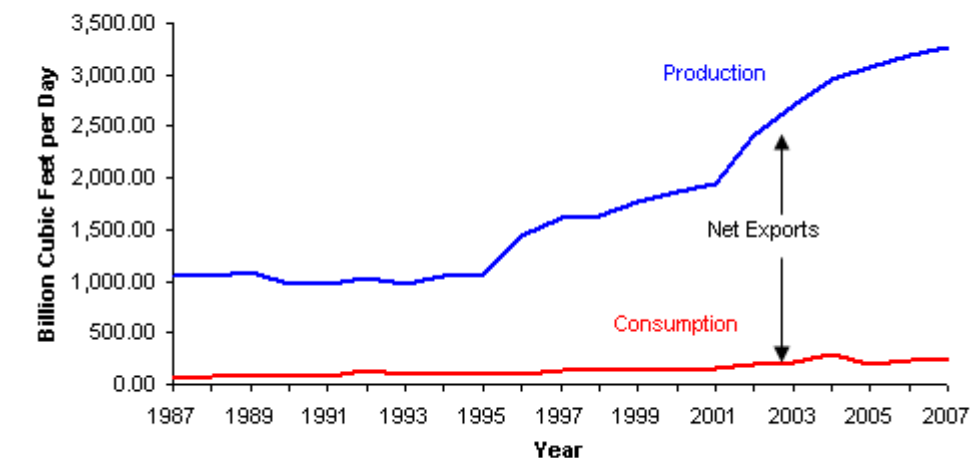
***Norway is the world's third largest exporter of natural gas after Russia and Canada and the second largest exporter to Europe after Russia***

According to the *OGJ*, Norway had 81.7 trillion cubic feet (Tcf) of proven natural gas reserves as of January 2009. Norway is expanding its exploration and development by increasing the number of wells drilled and using enhanced recovery in mature wells. A record 56 wells were drilled in 2008 led by StatoilHydro. Norway's northern waters continue to be highly gas-prone: the Barents Sea yielded three gas finds and one of gas and oil, while the Norwegian Sea's discoveries were all natural gas. In 2009, the company plans to drill another 65 wells.

## Production

Norway produced 3.5 Tcf in 2008 and has been increasing its production every year since 1994. Despite the maturation of its major natural gas fields in the North Sea, Norway has been able to sustain annual increases in total natural gas production by incorporating new fields in the Norwegian and Barents Seas. Norway's single largest natural gas field is Troll, which produced 2.88 Bcf per day (Bcf/d) in 2008 and represents about one-third of Norway's total natural gas production. Other important fields include Ormen Lange (1.11Bcf/d), Sleipner Ost (1.10 Bcf/d), Asgard (1.10 Bcf/d), and Oseberg (0.54 Bcf/d). These four fields compose over 70 percent of Norway's total natural gas production.

**Norway Natural Gas Production and Consumption, 1987-2007**



Source: EIA

## Sector Organization

As is the case with the oil sector, StatoilHydro dominates natural gas production in Norway. Several international majors, such as ExxonMobil, ConocoPhillips, Total, Shell, and Eni also have a sizable presence in the natural gas and oil sectors, working in partnership with Statoil Hydro.

State-owned Gassco is responsible for administering the natural gas pipeline network. The company also manages Gassled, the network of international pipelines and receiving terminals that exports Norway's natural gas production to the United Kingdom and continental Europe.

## Exports

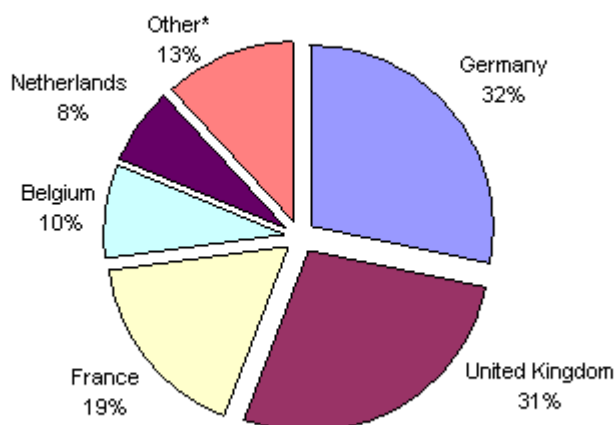
Norway exported about 3.3 Tcf of natural gas in 2008, almost all of it to Europe, via pipeline and a small amount via liquefied natural gas (LNG) tanker. The country is the second-largest supplier of natural gas to the European Union, behind Russia. The largest recipient of Norway's natural gas pipeline exports in 2008 was Germany (932 Bcf), followed by the United Kingdom (893 Bcf), and

France (562 Bcf).

#### *International Gas Pipelines*

Norway operates numerous natural gas pipelines which connect directly with Europe, in particular France, the United Kingdom, Belgium, and Germany. Some connections run from production facilities directly to receiving terminals in export markets, while others connect Norway's onshore processing facilities to these markets.

**Norway Natural Gas Pipeline Exports, 2008**



#### **Liquefied Natural Gas (LNG)**

StatoilHydro operates an LNG export terminal and liquefaction facility at Melkoya, near Hammerfest. The Melkoya facility, which is the first large-scale LNG export terminal in Europe, consists of an anchored barge with pipeline connections from the Snohvit gas field, the first development in the Barents Sea. The terminal came online in the second half of 2007 with a capacity of about 200 Bcf/y. According to Cedigaz, in 2008, shipments of LNG totaling about 77 Bcf were exported. The 3 largest importers of Norwegian LNG were Spain (48%), the United States (22%), and France (11%).

## Profile

### Energy Overview

<b>Proven Oil Reserves (January 1, 2009E)</b>	6.68 billion barrels
<b>Oil Production (2008E)</b>	2.47 million barrels per day, of which 88% was crude oil.
<b>Oil Consumption (2008E)</b>	217.3 thousand barrels per day
<b>Crude Oil Distillation Capacity (January 1, 2009E)</b>	315 thousand barrels per day
<b>Proven Natural Gas Reserves (January 1, 2009E)</b>	81.7 trillion cubic feet
<b>Natural Gas Production (2008E)</b>	3.5 trillion cubic feet
<b>Natural Gas Consumption (2008E)</b>	140 billion cubic feet
<b>Recoverable Coal Reserves (2005E)</b>	6 million short tons
<b>Coal Production (2007E)</b>	4.4 million short tons
<b>Coal Consumption (2007E)</b>	1.2 million short tons
<b>Electricity Installed Capacity (2007E)</b>	28.1 gigawatts
<b>Electricity Production (2006E)</b>	119.9 billion kilowatt hours

<b>Electricity Consumption (2006E)</b>	111.5 billion kilowatt hours
<b>Total Energy Consumption (2006E)</b>	1.9 quadrillion Btus*, of which Hydroelectricity (62%), Oil (23%), Natural Gas (12%), Coal (1%)
<b>Total Per Capita Energy Consumption (2006E)</b>	387 million Btus
<b>Energy Intensity (2006E)</b>	9,489 Btu per \$2000-PPP**

## Environmental Overview

<b>Energy-Related Carbon Dioxide Emissions (2006E)</b>	45 million metric tons, of which Oil (64%), Natural Gas (30%), Coal (6%)
<b>Per-Capita, Energy-Related Carbon Dioxide Emissions (2006E)</b>	9.8 metric tons
<b>Carbon Dioxide Intensity (2006E)</b>	0.2 Metric tons per thousand \$2000-PPP**

## Oil and Gas Industry

<b>Major Oil/Gas Terminals</b>	Sture, Mongstad, Karsto, Tjeldbergodden, Kollsnes, Melkoya
<b>Foreign Company Involvement</b>	Largest companies include ConocoPhillips, ExxonMobil, Total, Shell, BP
<b>Major Oil Fields (production, bbl/d) 2008</b>	Ekofisk (210,000), Grane (170,000), Snorre (150,000), Troll (140,000), Asgard (100,000), Heidrun (90,000), Gullfaks (90,000), Oseberg (90,000), Balder (80,000), Kristin (80,000)
<b>Major Natural Gas Fields (production, Bcf/d) 2008</b>	Troll (2.88), Ormen Lange (1.11), Asgard (1.10), Sleipner (1.10), Oseberg (0.54), Kristin (0.38), Gullfaks (0.36), Stadtfjord (0.29), Kvitebjorn (0.29), Snohvit (0.23 )
<b>Major International Pipeline Systems (to northwestern Europe)</b>	Franpipe, Zeepipe I, IIA, IIB, Europipe I, II, Norpipe, Vesterled, Langeled

**Major Refineries (capacity, bbl/d)** Mongstad (200,000), Slagen (115,000)

\* The total energy consumption statistic includes petroleum, dry natural gas, coal, net hydro, nuclear, geothermal, solar, wind, wood and waste electric power.

\*\*GDP figures from Global Insight estimates based on purchasing power parity (PPP) exchange rates.

## Links

### EIA Links

[EIA - Country Information on Norway](#)

### U.S. Government

[CIA World Factbook - Norway](#)

[U.S. Embassy in Oslo](#)

### Foreign Government Agencies

[Norwegian Petroleum Directorate \(NPD\)](#)

[Norwegian Ministry of the Environment](#)

[Statistics Norway](#)

### Oil and Natural Gas

[BP Norway](#)

[ConocoPhillips Norway](#)

[Gassco](#)

[INTSOK](#)

[Norsk Shell](#)

[Petoro](#)

[StatoilHydro](#)

[Total E&P Norge](#)

### Coal

[Store Norske Spitsbergen Kulkompani](#)

### Electricity

[Industrikraft](#)  
[Naturkraft](#)  
[Nordel](#)  
[Statkraft](#)  
[Statnett](#)

## Sources

Associated Press  
BMI Europe Oil and Gas Insights  
Business Wire  
CIA Factbook  
Economist Intelligence Unit  
Energy Information Administration (EIA)  
Eni  
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Petroleum Economist  
Platt's Oilgram News  
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StatoilHydro  
UPI Energy  
World Gas Intelligence  
World Markets Analysis

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